

TECHTALK DESIGN ADVICE SERIES

THE LATEST IN SLEWING RING BEARING TECHNOLOGY



If you've ever been in the market for a slewing ring bearing, you may have found the number of available options to be somewhat limited. Roller slewing rings have been the only choice for rotating or turntable applications, but for your next project you might want to consider a new technology: sliding-element slewing ring bearings.

Sliding slewing ring bearings can be considered a middle-ground solution. While they don't offer the same level of precision or load capacity that a rolling element does, sliding slewing ring bearings do offer a high-performance, lower-cost alternative. I would also estimate that 7 out of every 10 people using high-priced rolling elements chose them simply because they believed they were the only option available, not because the application required them.

Features

Most roller bearing designs use metal, stainless steel or ceramic balls to maintain the separation between the moving parts of the bearing. In contrast, sliding slewing ring bearings use self-lubricating, low-friction polymer sliding elements in place of balls.

Where roller bearings require constant lubrication and regular maintenance, sliding slewing ring bearings are a 'fit-and-forget' solution, as they do not require any additional lubrication or scheduled maintenance. Thanks to their lubrication-free properties, they won't



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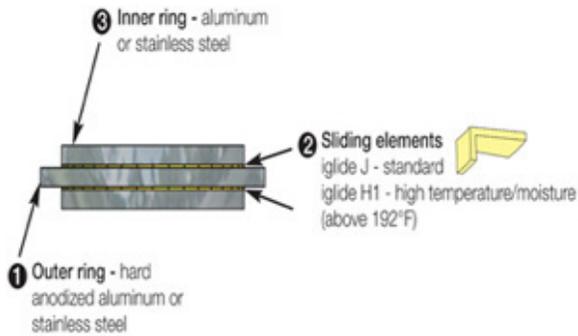
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contaminate environments or seize in applications with dirt or dust, unlike roller bearings.

The plastic sliding elements and hard anodized-aluminum finish of sliding slewing ring bearings possess low moisture absorption and corrosion-resistance and so do not require a cover or seal around the slewing ring when used in wash-down applications. Sliding slewing ring bearings can also be used in medical and lab

equipment, solar panels, food processing and packaging machines and many more.

Performance Factors

Load Capacity

igus[®] line of sliding slewing rings can handle dynamic loads up to 20,000 pounds in the axial direction and dynamic radial loads up to 6,000 pounds, which makes them ideal for applications with low to moderate loads. Roller bearings are best for applications handling exceptionally high loads.

Speed and Rotation

Sliding slewing ring bearings operate at a maximum of 200 rotations per minute (RPM), while a rolling system can deliver up to 500 RPMs. Clearly this is a large difference, but for the majority of applications, a sliding slewing ring can easily handle the job. On the rare occasion that an extremely high number of RPMs are required, a roller bearing would be the better solution. They are the best choice for fast, continuous rotations; while sliding slewing rings are ideal for applications with inconsistent movement at slow to moderate speeds or for fast speeds with very low loads.

Vibration Absorption

Sliding slewing ring bearings have excellent vibration-dampening ability. When tested, our PRT slewing ring bearings outperformed roller bearings in atmospheric conditions at 5G's. The vibration caused the balls in the roller bearing to fly out, while the sliding slewing bearing absorbed the vibration and remained completely intact.

Temperature

Both roller bearings and sliding slewing ring bearings can be used in extreme temperatures. The difference is sliding systems (with the plastic elements and optional stainless rings) can be used in applications reaching 392 degrees Fahrenheit and the maximum temperature that a roller bearing can endure is determined by the particular metals its made of.

Price

Choosing products that deliver a superior performance is a priority, but cost is also an important consideration when deciding on any component. Sliding slewing rings offer superior quality in

comparison to turntable-style slewing rings, but cost a lot less than high-end roller bearings, which are not necessary for many applications.

Conclusion

Sliding slewing ring bearings are a low-cost, replacement for expensive roller bearings. However, I always consider all the parameters, such as environment, loads, speeds and RPMs, before recommending the right type of bearing for your application.

I'm interested in your thoughts about sliding slewing ring bearings verses other bearing designs. Contact me at tmiller@igus.com.

Useful Links and Tools

[Learn more about iglide® PRT sliding slewing ring bearings.](#)

[Accessories for iglide® Sliding Slewing Rings: manual clamp, drive plate, mounting rings](#)